

155846

Wednesday, January 18, 2017 7:42:48 AM

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Stop *NS2*

Start Date: 1/10/2017 **Start Qty:** 4.00

4

Cust Item ID:

Required Date: 1/17/2017 **Req'd Qty:** 4.00

4

Customer:

Reference:

Run Start *NR1*

Approvals: _____ Process Plan: _____ Date: JAN 23 2017

Tooling: _____ **Date:** _____

Stop *ND2*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D3808	Rev A

100 0.00

100

BAND SAW

Bandsaw

Memo

Jeaspa Bandsaw

Cut blank 16.125 " long

110 0.07

110

HAAS CNC VERTICAL MACHINING #1

HAAS 1

Memo

HAAS CNC vertical machine #1

1- Mill as per Folio FA771 Rev: AA & Dwg D3808 Rev: A 2-Tap holes
for 8-32" Helicoil 3-Tap holes for 3/8-16 Helicoil 4-Deburr per dwg D3808

120	QC2- Inspect parts off machine FAI/FAIB	0.00
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120

QC2- Inspect parts off machine FAI/FAIB

OC

Memo

Quality Control

DQA:

Date: 2017-02-16



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed

Date:

FEB - 6 2017

Work Order update only

Work Order: <u>155846</u> Part No. <u>D3808-1</u> NCR No. <u>17-6257</u>		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☒ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Cross tube ☐ Water Jet ☐ Engineering ☐ Machining ☒ Small Fab ☐ Prod. Eng. Coord. ☐ Quality ☐ Thermoforming ☐ Finishing ☐ Rec/Store/Packaging ☐ Other ☐ Large Fab ☐ Composite ☐ Supplier ☐			
Date: <u>17/01/27</u>		Step #: <u>110</u>		QTY Effective: <u>1</u>		MRB (QSI042) Approval DAS 12 15/1/27 9-89	
Description Work Order Deviation				Disposition			
total length too small by .017" 15.88" ± .030 ↓ got 15.83 15.825 R.C. operator error take the "x" origin at the wrong place.				Acceptable. the difference in edge distance (±0.05) is similar to the allowable change in edge distance due to tolerance stack-up. No effect on strength or fit			
				Completed By DAS 12 15/1/27 9-89 Lead hand / Supervisor Approval Verification DAS 14 17/01/27 9-89 QC / QA Coordinator Approval DAS 17-01-27 9-89			
Root Cause Environment ☐ No Re-verification ☐ Design ☒ Operator ☒ Doc/Data ☒ Offset/Setup ☒ Equip/Tooling ☐ Supplier ☐ Handling/Pre ☐ Training ☐ Material ☐ Use for Testing ☐ Internal Transport ☐ Poor Information ☐ Tribal Knowledge ☐ Rushing ☐ LOA ☐ Product Improvement ☐ Substation ☐ Process Improvement ☐ Past Expiry Date ☐ Manufacturing Process ☐ Misidentified ☐ Past Due ☐				FAULT CATEGORY Pressure/Forced ☐ Temperature/Cure ☐ Power Loss/Surge ☐ Positioned Wrong ☐ Bending ☐ Set-up ☐ Folio/Program ☐ Outside Dimensions ☐ Centre Not Concentric ☐ BOM/Route ☐ Grain ☐ Over/Under tolerance ☒ Cracks ☐ Broken/Damage/Defect ☐ Weld ☐ Part Incorrect ☐ Crimp/Kink/Ripple/Wave ☐ Inspection Incomplete/Unqualified ☐ Wrong Stock Pulled ☐ Part Lost/Missing ☐ Cuffs ☐ Contamination ☐ Out of Sequence ☐ Part Moved ☐ Crushing ☐ Countersink ☐ Off-set ☐ Drawing ☐ Heat Treat ☐ Cut Too Short ☐ Misabeled ☐ Finish ☐ Wave/Twist in Tube ☐ Instructions Incomplete/Unclear ☐ Fit/Function ☐ Misread ☐ Marks/Chatter ☐ Drill Holes ☐ Misaligned/off center ☐ Turning Sequence ☐			
OTHER :							

Work Order ID 155846***155846***

Page 2

Wednesday, January 18, 2017 7:42:48 AM

Item ID: D3808-1 Accept *N900040100* Setup Start *NS1*
Revision ID: Stop *NS2*
Item Name: Seat Rail
Start Date: 1/10/2017 Start Qty: 4.00 *4* Cust Item ID:
Required Date: 1/17/2017 Req'd Qty: 4.00 *4* Customer:
Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start *NR1*
QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 *130* QC Quality Control	QC8- Inspect parts - second check Memo	0.00 0.01				4	0		DAS 44 9-89 17-01-28
140 *140* HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1 Memo	0.00 0.07				(x4)	0		2012/02/01 BEB
141 *141* QC Quality Control	QC3- Inspect Part Finish Memo	0.00 0.01				4			DAS 38 9-89 FEB 01 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

Work Order ID 155846***155846***

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Wednesday, January 18, 2017 7:42:48 AM

Item ID: D3808-1 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Seat Rail
Start Date: 1/10/2017 Start Qty: 4.00 ***4*** Cust Item ID:
Required Date: 1/17/2017 Req'd Qty: 4.00 ***4*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	Identify as per dwg & Stock Location: <u>St258</u>	0.00							
150									
Packaging	Memo	0.01							
Packaging									
160	QC21- Final Inspection - Work Order Release	0.00							
160									
QC	Memo	0.07							
Quality Control									

4 FEB 01 2017 DAS 6 9-89

17/02/02

FEB 02 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval 	
Description Work Order Deviation				Disposition					
								Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	

Root Cause			FAULT CATEGORY		
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐				

Picklist Print

Tuesday, January 17, 2017 1:21:49 PM

Page 1

Work Order ID: 155846

155846

Parent Item: D3808-1

D3808-1

Parent Item Name: Seat Rail

Start Date: 1/10/2017

Required Date: 1/17/2017

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP Rev:A New Issue 08-07-31 JLM Verified By:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6B2.000X01.25 0		Purchased	No			100	f	13.8670	1.35	5.684210			

M6061T6B2 000X01 250

6061-T6 Bar 2.00 x 1.25

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
MAT	0.667	
m134191	0.667	
MAT003	13.2	
m136327	1.2	
→ m136568	12	

5.7

DAS
14
9-89

17/01/26

DQA: _____ Date: _____



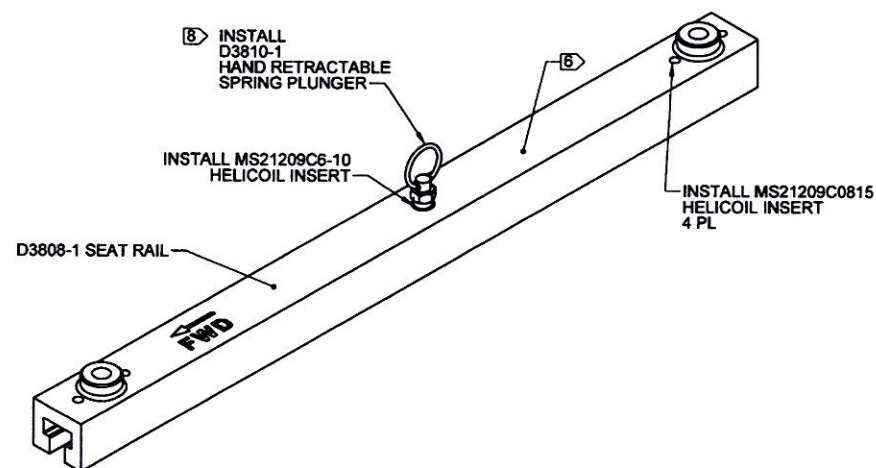
WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
340 81 98-2				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

QTY -041	P/N	DESCRIPTION
X	D3808-041	SEAT RAIL ASSY
1	D3808-1	SEAT RAIL
1	D3810-1	HAND RETRACTABLE SPRING PLUNGER
1	MS21209C6-10	HELI-COIL, SCREW LOCKING (RED)
4	MS21209C0815	HELI-COIL, SCREW LOCKING (RED)



D3808-041 SEAT RAIL ASSEMBLY

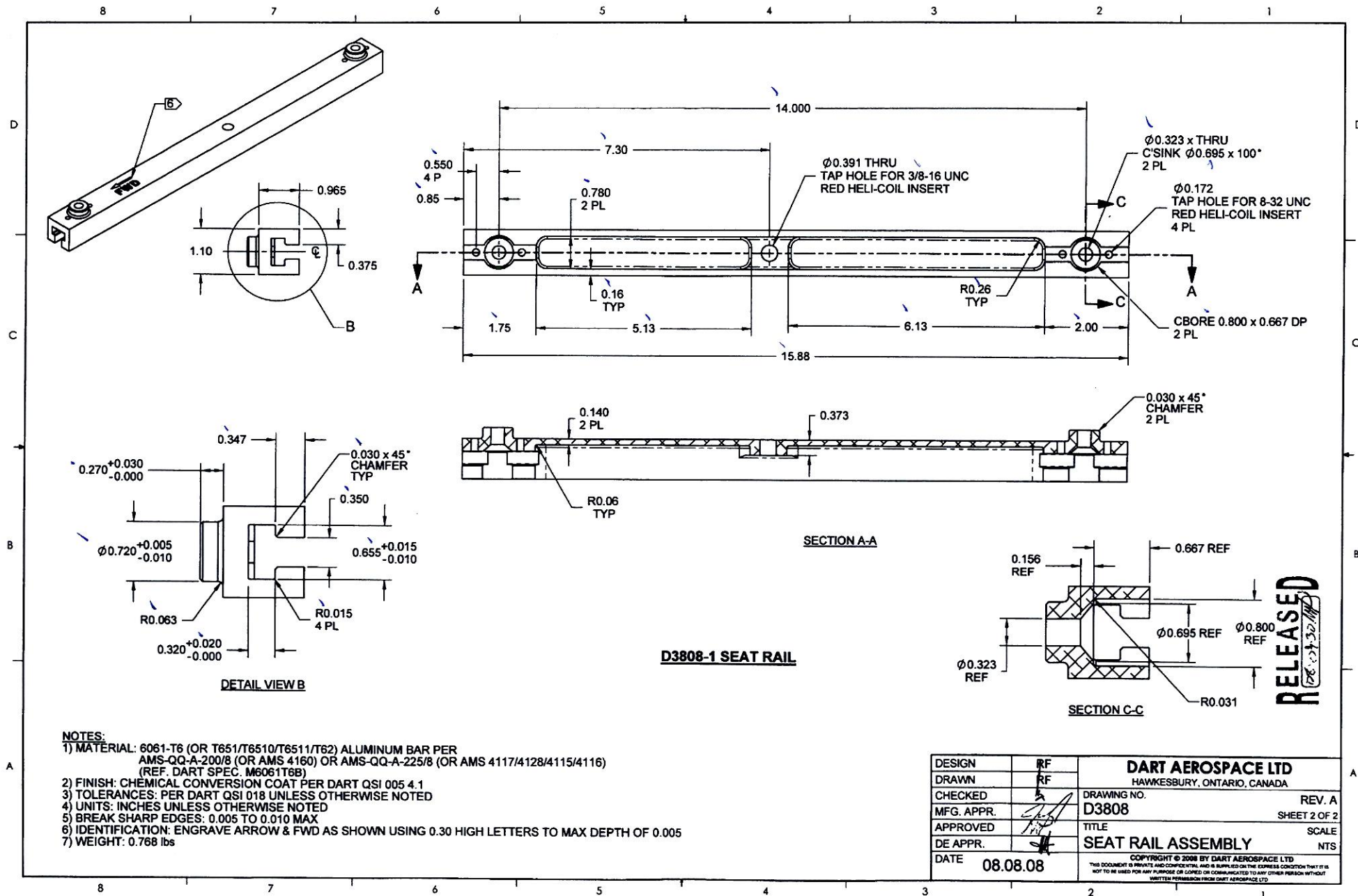
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 155846 MJ
1701-23

RELEASED
08-09-08 / 11/17

D3808-041 NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N D3808-041 USING FINE POINT PERMANENT INK MARKER AS SHOWN
- 7) WEIGHT: 0.80 lbs
- 8) INSTALL D3810-1 INTO D3808-1 ONLY UNTIL NO THREADS VISIBLE ON D3810-1

A		NEW ISSUE		RF	08.08.08
REV		DESCRIPTION		BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWN	RF				
CHECKED		DRAWING NO.	REV. A		
MFG. APPR.		D3808	SHEET 1 OF 2		
APPROVED		TITLE	SCALE		
DE APPR.		SEAT RAIL ASSEMBLY	NTS		
DATE		COPYRIGHT © 2008 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.			
08.08.08					



DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		D3808	SHEET 2 OF 2
APPROVED		TITLE	SCALE
DE APPR.		SEAT RAIL ASSEMBLY	NTS
DATE	08.08.08	COPYRIGHT © 2008 BY DART AEROSPACE LTD	
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RELEASED
08-07-30-114

DART AEROSPACE LTD		Work Order: 155846
Description: Seat Rail		Part Number: D3808-1
Inspection Dwg: D3808	Rev: A	Page 1 of 2

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
14.000	+/-0.010	14.000	✓		H-G 31006	
7.30	+/-0.030	7.300	✓		Vern CUC02	
0.550	+/-0.010	.550	✓		Vern M1-06	
0.85	+/-0.030	.846	✓		"	
0.780	+/-0.010	.782	✓		"	
Ø0.391	+0.006/-0.001	Ø.391	✓		"	
3/8-16 UNC	N/A	✓	✓		"	
Ø0.323	+0.006/-0.001	Ø.324	✓		"	
Ø0.695 x 100°	+/-0.010 x 0.5°	.696 x 100°	✓		"	
Ø0.172	+0.005/-0.001	Ø.173	✓		"	
8-32 UNC	N/A	✓	✓		"	
0.800 x 0.667 deep	+/-0.010	.801 x .674	✓		"	
2.00	+/-0.030	2.000	✓		"	
R0.26	+/-0.030	R.250	✓		R-G	
6.13	+/-0.030	6.125	✓		Vern M1-06	
5.13	+/-0.030	5.125	✓		"	
0.16	+/-0.030	.161	✓		"	
1.75	+/-0.030	1.751	✓		"	
15.88	+/-0.030	15.883	✓		"	
0.965	+/-0.010	.966	✓		"	
0.375	+/-0.010	.377	✓		"	
1.10	+/-0.030	1.105	✓		"	
0.140	+/-0.010	.139	✓		"	
0.373	+/-0.010	.367	✓		"	
0.030 x 45°	+/-0.010 x 0.5°	.030 x 45°	✓		"	
R0.06	+/-0.030	R.060	✓		R-G	
0.347	+/-0.010	.351	✓		Vern M1-06	
0.270	+0.030/-0.000	.275	✓		"	
Ø0.720	+0.005/-0.010	.721	✓		"	
R0.063	+/-0.010	R.063	✓		R-G	
0.320	+0.020/-0.000	.322	✓		Vern M1-06	
R0.015	+/-0.010	R.015	✓		R-G	
0.655	+0.015/-0.010	.656	✓		Vern M1-06	
0.350	+/-0.010	.352	✓		"	
0.030 x 45°	+/-0.010 x 0.5°	.030 x 45°	✓		"	
0.667	+/-0.010	.674	✓		"	

DART AEROSPACE LTD		Work Order: 155846
Description: Seat Rail		Part Number: D3808-1
Inspection Dwg: D3808	Rev: A	Page 2 of 2

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.156	+/-0.010	.157	—		Vern. cal. 66	
Ø0.695	+0.008/-0.001	.698	—			
Ø0.323	+0.006/-0.001	0.324	—			
Ø0.800	+0.010/-0.001	Ø.801	—			
R0.031	+/-0.010	R.031	—			

Measured by: ^{DAS} 14 ₉₋₈₉	Audited by: ^{DAS} 44 ₉₋₈₉	Prototype Approval:	N/A
Date: 17/01/27	Date: 17-01-28	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	09.05.19	New Issue	KJ	